



**FORMER CAPE MAIN SEWER TREATMENT PLANT
AREA, FACILITY 1798
SOLID WASTE MANAGEMENT UNIT NO. 6
45TH SPACE WING
CAPE CANAVERAL AIR FORCE STATION
BREVARD COUNTY, FLORIDA**



PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed in order to inform the public and give the public an opportunity to comment on a proposed remedy to clean up contamination at the Former Cape Main Sewage Treatment Plant, Facility 1798. A 45th Space Wing (45th SW) installation restoration partnering (IRP) team consisting of the United States Air Force (USAF), United States Environmental Protection Agency (USEPA), Florida Department of Environmental Protection (FDEP), the U. S. Army Corps of Engineers, and various environmental consultants have determined that the proposed remedy is cost effective and protective of human health and the environment. However,

Brief Site Description

The former CCAFS main sewage treatment plant (Facility 1798) was located approximately 1,000 feet east of the Banana River, adjacent to a man-made canal (See Figure 1). The plant operated from 1955 to 1997.

prior to implementation of the proposed remedy, the 45th SW IRP team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment

period, the public may comment as described in the "How Do You Participate" section of the SB. Upon closure of the public comment period, the 45th SW IRP team will evaluate all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

WHY IS CLEANUP NEEDED?

The results of the Resource Conservation and Recovery Act (RCRA) Facility Investigation

(RFI) indicated that a polynuclear aromatic hydrocarbon (PAH), various metals and pesticides are present in site soils at levels that could be potentially harmful to human health. Several volatile organic compounds (VOCs) are present in the groundwater at levels that could be potentially harmful to human health. Additional investigation of the groundwater, surface water, and sediment has been deferred to another site (Hangar K, SWMU No. 22), which has been identified as the primary source of the groundwater contaminant plume.

HOW DO YOU PARTICIPATE?

The 45th SW IRP team solicits public review and comment on this SB prior to implementation of the proposed remedy as a final remedy. The final remedy for Cape Main Sewage Treatment Plant, Facility 1798 will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Cape Canaveral Air

The Clean-up Remedy

The proposed clean-up remedy for Facility 1798 includes (but is not limited to) the following components:

- Implementation of land use controls designed to prevent exposure to site contaminants. These include:
 - Prohibition of residential development
 - Protection of construction workers from soil exposure
 - Posting warning signs on-site
 - Prohibition of groundwater as a drinking water source, pending additional investigation under SWMU No. 22

A complete list of land use controls and other protective measures are found in the Facility 1798 Land Use Control Implementation Plan (LUCIP).

Force Station (CCAFS).

The public comment period for this SB and the proposed remedy will begin on the date of publication of notice of availability of the SB in major local newspaper of general circulation and end 45 days thereafter. If requested during the comment period, the 45th SW IRP team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Jorge Caspary
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS-4535
Tallahassee, FL 32399-2400
E-mail: Jorge.Caspary@dep.state.fl.us
Telephone: (850) 921-9986

The HSWA Permit, the SB, and the associated Administrative Record, including the RFI Report, will be available to the public for viewing and copying at:

Environmental Management, CEV/ESC
Facility 1638, Samuel Phillips Parkway
Cape Canaveral Air Force Station, FL
For public access call (321) 853-0965

This information can also be found on-line at
http://www.mission-support.org/45SW_IRP_EA

The HSWA Permit, the SB, and Facility 1798 Report summaries will be available for viewing and copying at:

Central Brevard Library
308 Forrest Avenue
Cocoa, FL, 32922

To request further information, you may contact one of the following people:

Ms. Teresa Green
Environmental Restoration Element Chief
45 CES/CEVR
1224 Jupiter Street

Patrick Air Force Base, FL 32925-3343
E-mail: teresa.green@patrick.af.mil
Telephone: (321) 853-0965

Mr. Jorge Caspary
See previous contact information

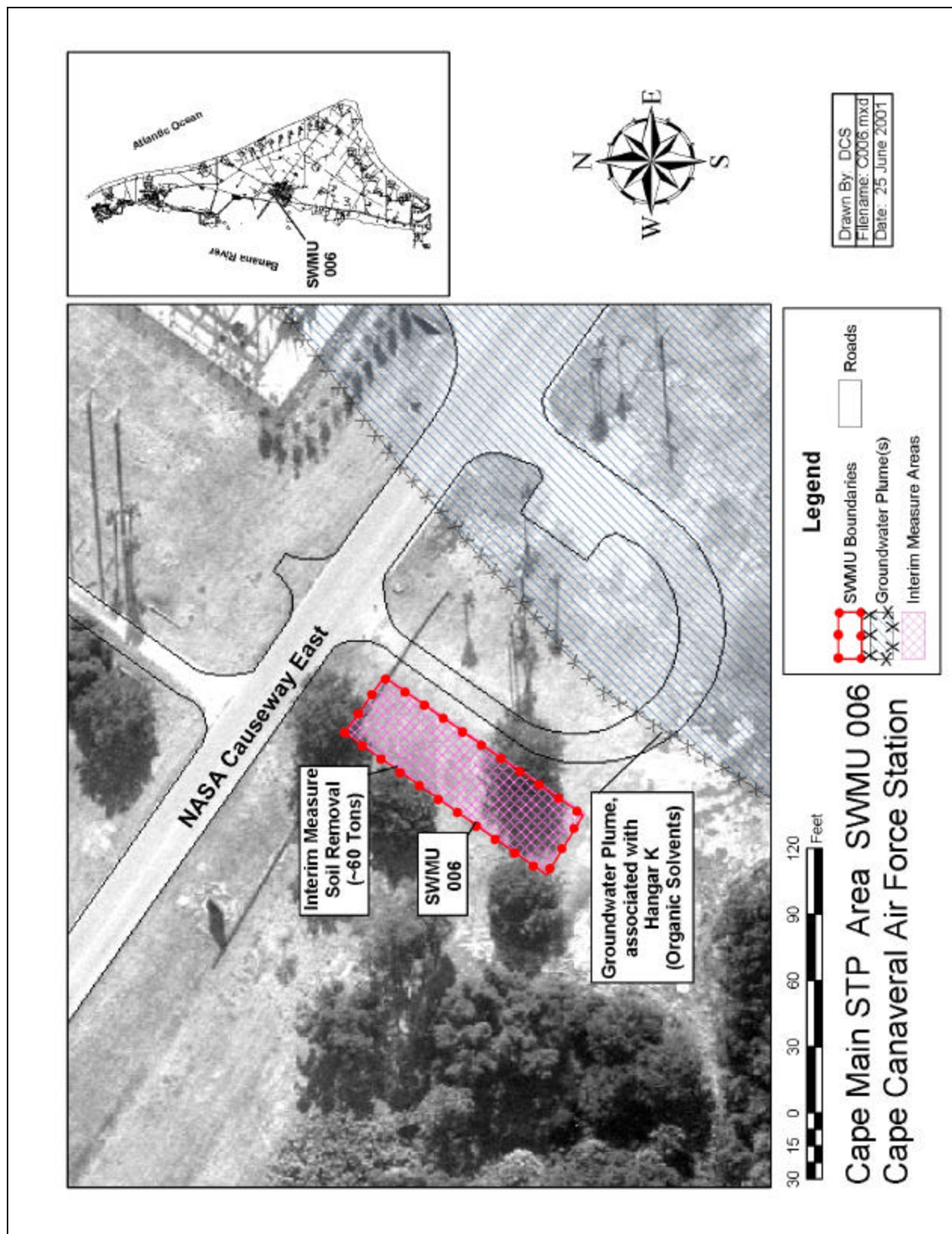
Mr. Timothy R. Woolheater, P. E.
EPA Federal Facilities Branch
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FACILITY DESCRIPTION

USAF established the 45th SW as the primary organization for the Department of Defense aerospace force programs. Historically, the National Aeronautics and Space Administration (NASA) also performed space launch related operations on the 45th SW property. These operations have involved the use of toxic and hazardous materials. Under RCRA and the HSWA Permit (CCAFS Permit No. FL2800016121) issued by the USEPA, the 45th SW was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 6, Cape Main Sewage Treatment, Plant Facility 1798.

SITE DESCRIPTION AND HISTORY

Facility 1798, formerly the Cape Main Sewage Treatment Plant, was located at the intersection of Industry Road (NASA Causeway East) and Scrub Jay Road on CCAFS (See Figure 1). The site is located in the CCAFS Industrial Area and is approximately 1,000 feet east of the Banana River on a man-made canal that flows into the river. The sewage treatment plant operated from 1955 until 1997, when the plant was decommissioned and underwent demolition. Prior to demolition, various facilities were located on the site including: a control building, a sewage lift station, a chlorinator facility, two sludge drying beds, a settling tank, a digester



In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for CCAFS Facility 1798. For detailed information, consult the Facility 1798 RFI Report which is available for review at the 45th SW Environmental Management Office (See "How Do You Participate") or on-line at http://www.mission-support.org/45SW_IRP_EA.

building, three trickling filters, a pump house, a flow meter pit, a plug valve pit, and a sludge drying bed.

The USAF conducted the following investigations:

- 1993: A Preliminary Assessment including records search, site reconnaissance, and interview with knowledgeable aerospace personnel identified four areas of concerns which warranted further investigation. A Site Investigation (SI) was recommended to collect and analyze the site's environmental media (soil, groundwater, surface water, and sediment) to evaluate the presence or absence of contamination.
- 1995: The SI report concluded that the presence of constituents in soil, groundwater, surface water and sediment might pose a risk to human health and the environment. The SI recommended that a RCRA Facility Investigation (RFI) be conducted to assess the nature and extent of the contamination present at the site, and perform risk assessments to determine if the contamination is potentially detrimental to human or ecological health.
- 1997: An Interim Measure was performed to remove pesticide-contaminated soil. The clean-up action resulted in the removal of approximately 43 cubic yards (60 tons) of soil.
- 1995-1998: An RFI was performed, detailing the sampling and analysis of site soil. These results were used to determine human health and ecological risks. The Preliminary Risk Evaluation (PRE) for human health indicated that potential risk exists from the site's soils. The ecological risk assessment indicated that no unacceptable ecological risk is present at the site. During the RFI the 45th SW IRP team decided to assess and document Facility 1798's groundwater concerns under another

SWMU, Hangar K Area (SWMU No. 22).

SUMMARY OF SITE RISK

As part of the RFI activities, human health and ecological risk were assessed in order to estimate the health and environmental risks associated with the site-specific contamination. These evaluations were performed in accordance with risk management decision processes established by the USEPA, FDEP, and the USAF at the time the RFI was initiated.

The Chemicals of Potential Concern (COPCs) identified during the RFI were:

- Soil: benzo(a)pyrene, aldrin, alpha-chlordane, 4,4'-DDD, 4,4'-DDE, dieldrin, gamma-chlordane, aroclor 1260, aluminum, beryllium, cadmium, chromium, iron, manganese, mercury, silver, zinc

A formal risk assessment was not conducted at Facility 1798. As discussed below, sediment, surface water, and groundwater were deferred to the Hangar K (SWMU No. 22) investigation after it was established that contamination in those media resulted from a groundwater plume originating at Hangar K. In order to screen soil at Facility 1798 for potential human health concerns, maximum concentrations were compared to screening criteria (residential standards and leachability standards). All compounds listed above as COPCs exceeded screening criteria. However, the majority of the exceedances either were in subsurface soil or were below industrial standards. Based on this, no unacceptable risk was identified for current receptor scenarios, since casual contact with surface soils is the only exposure mechanism. Although not formally quantified, unacceptable risk or hazard may potentially be posed by soil exposure under future land use scenarios (residential or construction worker scenarios).

Groundwater data was collected at Facility 1798. It was determined that although groundwater contaminants exceed Maximum Contaminant Levels (MCLs) established by

USEPA, these contaminants are associated with a plume emanating from another SWMU (SWMU No. 22, Hangar K). Furthermore, the groundwater plume intersects a canal at Facility 1798, tying surface water and sediment contamination back to Hangar K, as well. Based on this conclusion, a groundwater, surface water, and sediment human health risk assessment was not performed for Facility 1798. Risk and final remedial options associated with these three media are being addressed under SWMU No. 22 (Hangar K) for the plume as a whole. It will be necessary to restrict contact with and use of groundwater, surface water, and sediment at Facility 1798 until a remedy selected through the Hangar K investigation.

A qualitative evaluation of ecological risk determined that potential risk to ecological receptors is minimal. The site is not a significant habitat, as it is developed, paved, mowed, and maintained. Although soil contamination does provide the potential for ecological exposure, the mowed and maintained grass at the site makes foraging unlikely.

WHAT ARE THE CLEANUP OBJECTIVES AND LEVELS?

The remedial action objectives (RAOs) are to:

- 1) Protect humans from exposure to shallow groundwater and prevent consumption of groundwater from the shallow aquifer (until a groundwater remedy is developed for the Industrial Area as a whole, under SWMU No. 22); and
- 2) Prevent unacceptable human contact with site soils, sediment, and surface water.

Table 1 lists the COPCs present at the 1798 site. The first column lists the chemical name, the second column lists the maximum concentration detected in the impacted media at 1798 during the RFI, and the last column presents the clean-up level to be achieved at the site.

Please note that groundwater will be investigated and remediated under SWMU No. 22, where the contamination is believed to

have originated. Therefore, groundwater contaminants are not included in Table 1.

TABLE 1— CLEANUP GOALS

Site-Related Chemicals of Potential Concern (COCs)	Maximum Detected Concentrations (mg/kg)	Site-Specific Clean-up Level ¹ (mg/kg)
SOIL		
Benzo(a)pyrene	0.24	0.088
Aldrin	0.45	0.038
Alpha-Chlordane	4.9	0.8
4,4'-DDD	7.1	2.7
4,4'-DDE	2.4	1.9
Dieldrin	0.27	0.04
Gamma-Chlordane	6.8	0.8
Aroclor 1260	1.3	0.319
Aluminum	12,900	7,800
Beryllium	2.5	0.1
Chromium	156	38
Cadmium	37.3	3.9
Iron	10,000	2,300
Manganese	15,700	180
Mercury	22.2	2.3
Silver	341	39
Zinc	3,000	2,300

¹ Clean-up level represents the most stringent value among USEPA and FDEP at the time of the final investigation.

CLEANUP ALTERNATIVES FOR FACILITY 1798

Clean-up alternatives are different combinations of plans to restrict site use and to contain, remove, and/or treat contamination in order to protect public health and the environment. Only two alternatives were considered because of low levels of contamination present at the Facility 1798. The clean-up alternatives considered for the Facility 1798 are summarized below.

No Action: Evaluation of the No-Action alternative is used as a basis for comparison with other alternatives. Under this alternative, no remedial action would be taken to reduce human health risks or restrict site use. It was determined this alternative would not attain the RAOs.

Land Use Controls: Under this alternative, the 45th SW would implement site-specific controls and measures to prevent exposure of hypothetical future residents and construction workers to site soils, prevent consumption of shallow groundwater, and limit exposure to groundwater, surface water and sediment. Additional investigation, remediation, and monitoring of groundwater, surface water, and sediment will be conducted under CCAFS SWMU No. 22, Hangar K Area; however, land use controls would be implemented to limit the use of shallow groundwater as a drinking water source.

Sediment and surface water have been addressed under an Interim Measure that was conducted to help contain the Hangar K groundwater plume. A system has been installed to prevent plume discharge into the canal (which is the cause of any surface water or sediment contamination). Maintenance of this system (or its equivalent) will be included as part of the Hangar K (SWMU No. 22) remedy, until such a time as discharge of the groundwater plume into surface water is no longer an issue. In the long term, this remedy alternative will meet RAOs and will also allow re-evaluation to determine if the remedy is working and provide an opportunity for change, if necessary.

The 45th SW, USEPA, and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how land use controls will be managed at the 45th SW. The MOA requires periodic inspections, condition certification, construction project coordination, and agency notification. Site-specific details can be found in the Facility 1798 Land Use Control Implementation Plan (LUCIP).

EVALUATION OF REMEDY ALTERNATIVES

Each cleanup alternative was evaluated to determine how each potential remedy would comply with the four general standards for corrective measures. The four general standards for corrective measures are:

- Overall protection of human health and the environment;
- Attain media cleanup standards;
- Control the sources of releases; and
- Comply with standards for management of wastes

The second alternative (Land Use Controls) meets each of the above criteria, while the no action alternative remedy would not meet them.

LAND USE CONTROLS AGREEMENT

By separate MOA dated 23 December 1999, with USEPA and FDEP, CCAFS, on behalf of the Department of the Air Force, agreed to implement base-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by installation personnel of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the USAF's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to the USEPA and FDEP as to the permanency of those remedies which included the use specific land use controls.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by the USAF, USEPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent on CCAFS's substantial good-faith compliance with the specific land use control maintenance commitments reflected therein. Should such

compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

WHAT IMPACTS WOULD THE CLEANUP HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the surrounding communities because groundwater underlying the site is not used for potable water. Potential releases from groundwater to surface water are mitigated by a treatment system which is maintained and monitored under SWMU No. 22. Additionally, residential use of Facility 1798 is not occurring nor is it expected in the near future. As long as CCAFS remains an active gateway for the aerospace industry, the Facility 1798 area is expected to continue as an industrial setting.

Land use controls will be put in place to ensure that construction workers are adequately protected when engaging in activities that require contact with subsurface soil or groundwater, and that construction activities do not cause contaminant re-distribution.

WHY DOES THE 45th SW IRP TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because land use controls will prevent exposure to contaminants prior to the cleanup levels being achieved. Additionally, remediation of groundwater, surface water, and sediment will be implemented in conjunction with SWMU No. 22, and will mitigate long term concerns in those media. The proposed remedy meets the four general standards for corrective measures.

NEXT STEPS

The 45th SW IRP team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into the CCAFS HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then the land use controls will be initiated and a LUCIP will be developed and incorporated into the MOA.



LAND USE CONTROL IMPLEMENTATION PLAN

FORMER CAPE MAIN SEWER TREATMENT PLANT AREA , FACILITY 1798 SOLID WASTE MANAGEMENT UNIT 6 (SWMU NO. 6) 45TH SPACE WING CAPE CANAVERAL AIR FORCE STATION BREVARD COUNTY, FLORIDA

Facility Description

Facility 1798 - Former Cape Main Sewage Treatment Plant was located at the intersection of Industry Road (NASA Causeway East) and Scrub Jay Road. The site is located approximately 1000 feet east of the Banana River along a man-made canal which flows into the river. The sewage treatment plant was in operation from 1955 until 1997, when the plant was decommissioned and underwent demolition. A new sewage treatment plant was constructed at another site. Prior to demolition, numerous structures were present at the facility, including three sludge drying beds and a wet well/pump pad. It should be noted that groundwater contamination underlying Facility 1798 is due to dissolved contaminants emanating from Hangar K (SWMU No. 22) in the industrial area.

Location

(Reference Site Map on last page of this document)

Site Plan Coordinate	Northing	Easting
North	1513207.88	789694.47
West	1513116.73	789629.63
South	1513099.35	789657.35
East	1513190.02	789718.43

Objective

Implementation of site-specific land use controls to protect against exposure to contaminated soil and shallow groundwater and to prevent consumption of the shallow groundwater. The objectives for Facility 1798 will be achieved in conjunction with additional investigation and remediation of groundwater at Hangar K (SWMU No. 22). Groundwater land use controls at Facility 1798 will remain in place, until the groundwater contamination is successfully remediated under Hangar K.

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Land Use Controls (LUCs) to be Implemented:

Administrative:

- The property will be prohibited from residential or other non-industrial development without prior written notification to Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA) concerning the SWMU land use change. Dependent on site conditions and the nature and intensity of the proposed land use change, additional site investigations and assessments could be required for the United States Air Force (USAF). Based on these analyses, additional remedial measures may be required prior to land use change.
- Perform and document baseline LUC audit upon finalization of the Statement of Basis.
- Perform and document quarterly LUC compliance inspections in accordance with 45th SW LUC Operations Manual.
- Perform, document, and report an annual audit on LUC implementation, maintenance, and compliance in accordance with the 45th SW LUC Operations Manual and the current CCAFS Corrective Action Management Plan (CAMP).
- The property Land Use Control Implementation Plan (LUCIP) shall remain in effect until:
 - a) Changes to applicable Federal and State risk-based clean-up standards occur which indicate site contaminants no longer pose potential residential risk; or
 - b) Reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs.
- In the event of property realignment, transfer, or re-use for non-industrial or non-commercial purposes, assessment and remediation may be necessary to ensure that impacts to ecological receptors are not increased or to mitigate potential ecological impacts where residual contamination exists.

Soil:

- Soils will not be disturbed or moved during property development, maintenance or construction, without:
 - a) USAF review, coordination, and approval of the proposed construction/development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
 - b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to off-site disposal; and

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- c) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS Hazardous and Solid Waste Amendments (HSWA) Permit.

Groundwater:

- The consumptive use of the site's surficial aquifer groundwater will be prohibited.
- Incidental consumption and dermal exposure to groundwater from the surficial aquifer will be prevented. This will be addressed by the project proponent's health and safety advisor.
- Groundwater will not be contacted, pumped, or discharged during property development, maintenance, or construction, without:
 - a) USAF review, coordination, and approval of the proposed construction/development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
 - b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media (groundwater) does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to any pumping or discharge of groundwater; and
 - c) Use of proper personal protection equipment by Site workers, as determined by the project proponent's occupational health and safety advisor.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS HSWA permit.

Surface Water/Sediment:

- Continue operation/maintenance of plume control system to ensure that contaminated groundwater does not discharge to adjacent surface water bodies.
- Conduct periodic monitoring to ensure that plume control system is operating as intended.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS HSWA permit.

Statement of Basis:

The Statement of Basis (SB) is currently being reviewed. It is anticipated that the SB will be accepted/incorporated into the HSWA Permit, scheduled for issuance early in 2002.

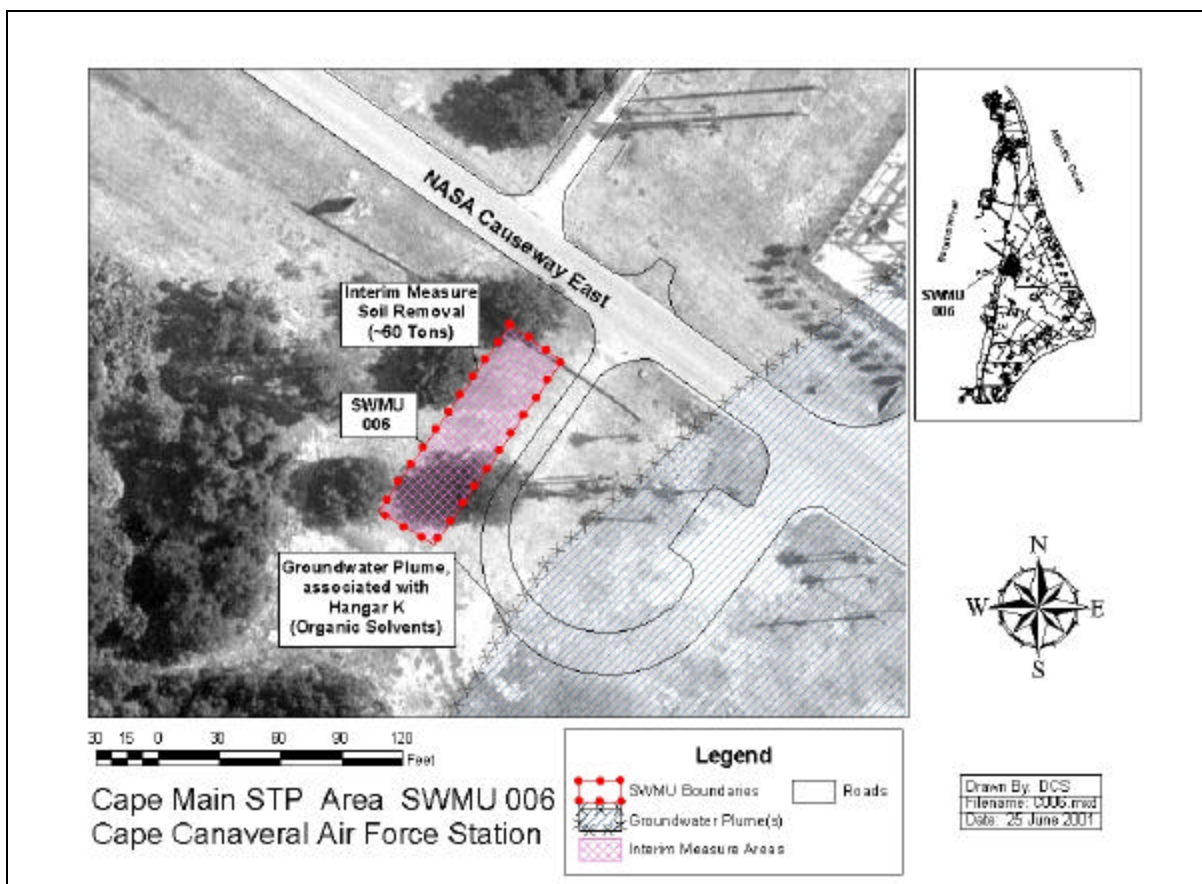
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Additional Information:

Pertinent Document Reference:

RCRA Facility Investigation and No Further Action Planned Decision Document,
Facility 1798, SWMU No. 6, Parson Engineering Science, Inc., April 1998.

Facility 1798 – Site Map



Please contact the 45 SW Installation Restoration Program Office to obtain additional information, including:
the 45 SW Land Use Controls Operation Plan; the CCAFS HSWA Permit; a complete record of corrective actions at Facility 1798; or other
related documents, guidance, and regulations. The IRP office can be reached by phone at (321) 853-0965. Information can also be obtained via
the IRP website at http://www.mission-support.org/45SW_IRP_EA